PREDESIGN/PRESURVEY REPORT

Project No.:
TIP No.:
Let Date:
WBS No.:

Bridge No.: 670073
Road No.: SR1115 Bradshaw Quarry rd
Stream: Cane Creek

County: Orange

Type of Request:

Date: 8/28/2014 **Name**: SMQ **Assigned to:**

Checked by:

Prior Survey Date (attach copy of prior survey): YES

Study by Scour Section: Attached

Flood Zone: Yes **Detail Study:** LDS **Date:** 02/02/07 **Panel No.:** 9841

BM Info:

Quad Map: White Cross (NW) **Drainage Area:** 0.07 Sq Mi **From:** USGS Region 1

Q25: 107cfs **Q50:** 134cfs **Q100:** 160cfs **Method:** Rural USGS SI report 2009-5158

EXISTING BRIDGE INFORMATION

Location: 0.7 Mi. E. JCT. SR1114

Average Daily Traffic: 1100 2011 Year

Length: 36 Feet **Bed-to-Crown:** 11 Feet **Water Depth:** 1 Feet

Type of Structure: Timber deck on timber joist.END&INTBTS:Timber caps,posts&piles,conc.encas,tim bulkhd

Type of Span(s): 2@17'9

Upstream Structure: N/A

Location:

Bed-to-Crown: **Prior Survey:**

Downstream Structure: Str. 189

Location: 0.9 Mi. N. JCT. SR1006

Bed-to-Crown: 15 Feet **Prior Survey:** No

SCS Watershed:

ENVIRONMENTAL

Trout Stream: No **Anadromous Fish:** No **Primary Nursery Area:** No

High Quality Waters: Yes **Nutrient Sensitive Waters:** Yes

Near Water Supply Intake: No **CAMA County:** No

Stream Classification: WS-II: Water Supply II - Undeveloped Notes: None

DENR River Basin Info: Cape Fear

MAINTENANCE COORDINATION

Bridge Maintenance – Contact Superintendent and Supervisor.

High Water:

Relocation: **New Alignment Staked:** **BM Information:**

Road Maintenance – Contact District Engineer and County Maintenance Engineer.

High Water:

Road to be Paved: **Relocation of Vicinity of Bridge:**

New Alignment Staked: **BM Information:**

Initiated as: **Date Initiated:**

Man-days Estimated:

Date Surveyed: **Date Completed:**

Personnel	Hours	Pay Period

Comments:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

June 17, 2010

MEMORANDUM TO: Mr. Don Idol
Assistant Bridge Inspection Engineer

FROM: Jerry Beard, P.E.
Scour Engineer
Hydraulic Design Unit

SUBJECT: **Transmittal of Bridge Scour Assessments**

The scour committee recommends, based on the Geotechnical Units low risk screening using NCHRP 24-25 "Guidelines for Risk-Based Management of Bridges with Unknown Foundations", that the following bridges that are coded U in Item 113 have a code Z added in the Plan of Action (POA) field. Have the POA displayed for future inspection guidance:

County Name	Bridge #	Code
ORANGE	670008	Z
ORANGE	670011	Z
ORANGE	670012	Z
ORANGE	670018	Z
ORANGE	670020	Z
ORANGE	670023	Z
ORANGE	670043	Z
ORANGE	670047	Z
ORANGE	670051	Z
ORANGE	670069	Z
ORANGE	670073	Z
ORANGE	670075	Z
ORANGE	670090	Z
ORANGE	670104	Z
ORANGE	670126	Z
ORANGE	670132	Z
ORANGE	670135	Z
ORANGE	670136	Z
ORANGE	670137	Z
ORANGE	670141	Z
ORANGE	670173	Z
ORANGE	670189	Z
ORANGE	670192	Z

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
HYDRAULICS UNIT
1590 MAIL SERVICE CENTER
RALEIGH NC 27699-1590

TELEPHONE 919-250-4100
FAX 919-250-4108

WEBSITE:
HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/HYDRO/

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

County Name	Bridge #	Code
ORANGE	670199	Z
ORANGE	670214	Z
ORANGE	670232	Z
ORANGE	670234	Z

Code Z:

Bridge with "Unknown Foundation" that has not been evaluated for scour. Average Daily Traffic (ADT) is less than 1500. Bridge is considered low risk using NCHRP 24-25 "Guidelines for Risk-Based Management of Bridges with Unknown Foundations". A Plan of Action (POA) has been implemented.

POA

Monitor bridge foundation during biennial inspection cycle for case 1 or 2.

1) If mud line at any end bent or interior bent scours more than 4 feet from the established baseline contact the Hydraulics Unit. Establish a baseline using the 2008-2009 inspection soundings.
2) If footings have greater than 10% of the bearing undermined, contact the Hydraulics Unit.

If you have any questions or comments concerning the above please feel free to contact me at 250-4100.

MAILING ADDRESS.
NC DEPARTMENT OF TRANSPORTATION
HYDRAULICS UNIT
1590 MAIL SERVICE CENTER
RALEIGH NC 27699-1590

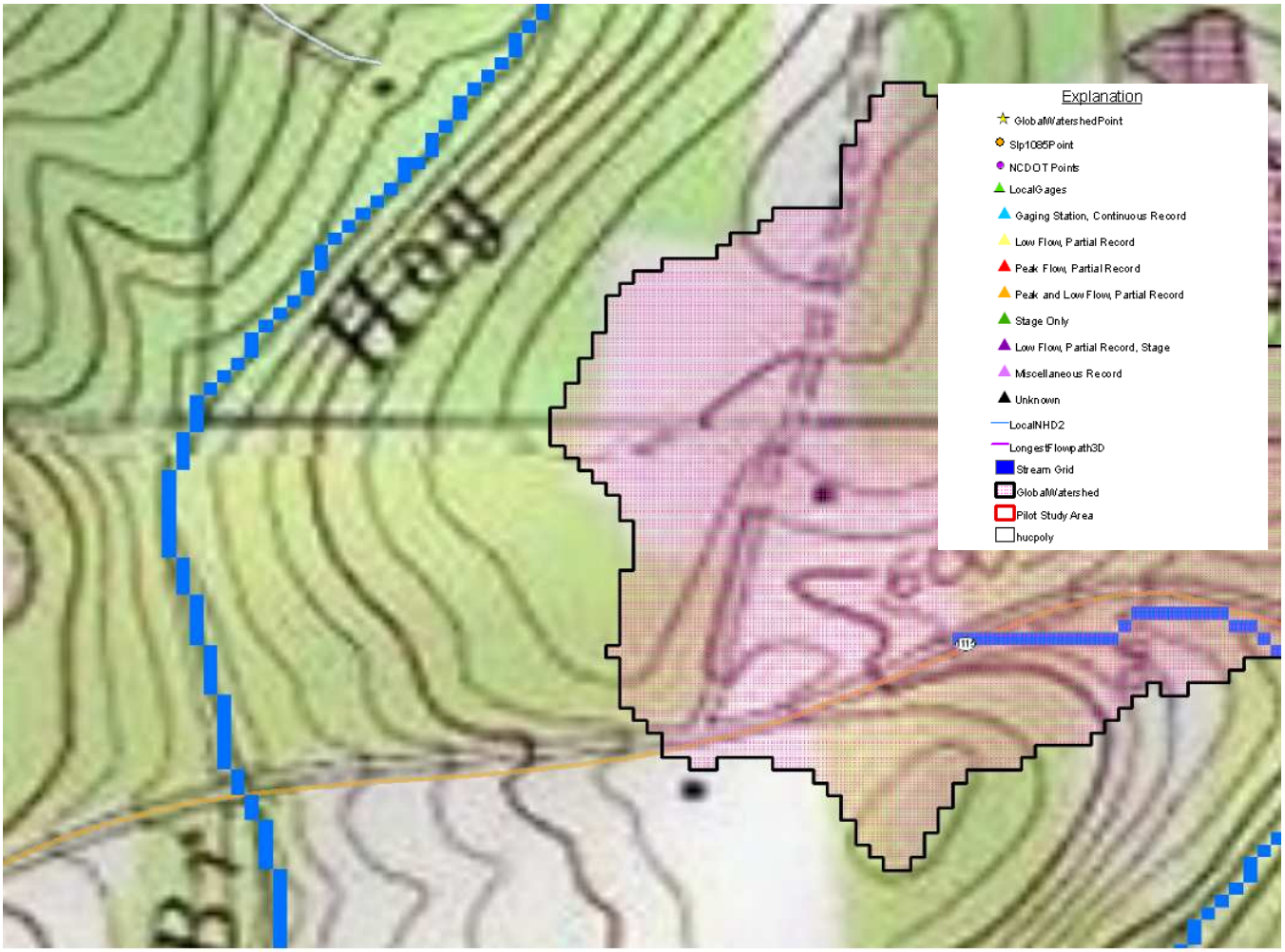
TELEPHONE 919-250-4100
FAX 919-250-4108

WEBSITE.
HTTP //WWW NCDOT ORG/DOH/PRECONSTRUC T/HIGHWAY/HYDRO/

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC

USGS
North Carolina StreamStats

670073 Orange



8/29/2014 11:59:03 AM

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION PM'S ISSUED
TEMPORARY REPAIRS

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY ORANGE BRIDGE NUMBER 670073 INSPECTION CYCLE 2 YRS

ROUTE SR1115 ACROSS CANE CREEK M.P. 0

LOCATION 0.7 MI. E. JCT. SR1114

SUPERSTRUCTURE TIMBER DECK ON TIMBER JOISTS

SUBSTRUCTURE END&INTBTS:TIMBER CAPS,POSTS&PILES,CONC.ENCASED,TIM.BULKHEAD

SPANS 2@17'9

LONGITUDE 79° 11' 38.01" LATITUDE 35° 59' 55.00"

INSPECTION DATE 10/02/2013 PRESENT CONDITION FAIR

PRESENT POSTING SV 20 TTST 30 SV 19 TTST 28 PROPOSED POSTING

OTHER SIGNS PRESENT 4 DELINEATORS

LOOKING EAST

Fracture Critical	No
Temporary Shoring	No
Scour Critical	No
Scour POA	No

SIGN NOTICE ISSUED FOR		NUMBERED REQUIRED
No	WEIGHT LIMIT	
No	DELINEATORS	
No	NARROW BRIDGE	
No	ONE LANE BRIDGE	
No	LOW CLEARANCE	

NATIONAL BRIDGE INVENTORY-------- STRUCTURE INVENTORY AND APPRAISAL Update Date: 12/04/2013

IDENTIFICATION

(1) STATE NAME -NORTH CAROLINA BRIDGE **670073**
(8) STRUCTURE NUMBER(FEDERAL) 000000001350073
(5) INVENTORY ROUTE (ON/UNDER) - ON 31011150
(2) STATE HIGHWAY DEPARTMENT DISTRICT 1
(3) COUNTY CODE 135 (4) PLACE CODE 0
(6) FEATURE INTERSECTED - CANE CREEK
(7) FACILITY CARRIED SR1115
(9) LOCATION 0.7 MI. E. JCT. SR1114
(11)MILEPOINT 0
(16)LAT 35° 59' 55.00" (17)LONG 79° 11' 38.01"
(98)BORDER BRIDGE STATE CODE PCT SHARE
(99)BORDER BRIDGE STRUCTURE NO

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE MAIN: Wood or Timber
TYPE - Stringer Mutlibeam or Girder CODE 702
(44) STRUCTURE TYPE APPR :
TYPE - CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 2
(46) NUMBER OF APPROACH SPANS
(107)DECK STRUCTURE TYPE - 8 CODE
(108)WEARING SURFACE / PROTECTIVE SYSTEM :
(A) TYPE OF WEARING SURFACE - CODE
(B) TYPE OF MEMBRANE - CODE
(C) TYPE OF DECK PROTECTION - CODE

AGE AND SERVICE

(27) YEAR BUILT 1956
(106)YEAR RECONSTRUCTED
(42) TYPE OF SERVICE : ON - Highway
UNDER - Waterway CODE 15
(28) LANES: ON STRUCTURE 2 UNDER STRUCTURE 0
(29) AVERAGE DAILY TRAFFIC 1100
(30) YEAR OF ADT 2011 (109) TRUCK ADT PCT 6%
(19) BYPASS OR DETOUR LENGTH 2 MI

GEOMETRIC DATA

(48) LENGTH OF MAXIMUM SPAN 17 FT
(49) STRUCTURE LENGTH 36 FT
(50)CURB OR SIDEWALK: LEFT .375 FT RIGHT .375 FT
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 25.083 FT
(52) DECK WIDTH OUT TO OUT 26.083 FT
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 16 FT
(33) BRIDGE MEDIAN - No Median CODE 0
(34) SKEW 0° (35) STRUCTURE FLARED 0
(10) INVENTORY ROUTE MIN VERT CLEAR 999.9 FT
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 25.083 FT
(53) MIN VERT CLEAR OVER BRIDGE RDWY 999.9 FT
(54) MIN VERT UNDERCLEAR REF Not a Highway or Railroad 0 FT
(55) MIN LAT UNDERCLEAR RT REF Not a Highway or Railroad 000 FT
(56) MIN LAT UNDERCLEAR LT REF - 000 FT

NAVIGATION DATA

(38) NAVIGATION CONTROL - No Navigational Control CODE 0
(111)PIER PROTECTION - CODE
(39) NAVIGATION VERTICAL CLEARANCE 0
(116)VERT - LIFT BRIDGE NAV MIN VERT CLEAR FT
(40) NAVIGATION HORIZONTAL CLEARANCE 0 FT

SUFFICIENCY RATING = 23.63
STATUS = Structurally Deficient

CLASSIFICATION — CODE

(112)NBIS BRIDGE SYSTEM - YES
(104)HIGHWAY SYSTEM Is not on NHS 0
(26) FUNCTIONAL CLASS - Minor Collector 08
(100)STRAHNET HIGHWAY - Not a STRAHNET Route 0
(101)PARALLEL STRUCTURE - No Parallel Structure N
(102)DIRECTION OF TRAFFIC - 2-way Traffic 2
(103)TEMPORARY STRUCTURE - Temporary Structure/Conditions T
(110)DESIGNATED NATIONAL NETWORK - Not on the National Network 0
(20) TOLL On Free Road 3
(31) MAINTAIN - State Highway Agency 01
(22) OWNER - State Highway Agency 01
(37) HISTORICAL SIGNIFICANCE - Not Eligible 5

CONDITION — CODE

(58) DECK 5
(59) SUPERSTRUCTURE 7
(60) SUBSTRUCTURE 4
(61) CHANNEL & CHANNEL PROTECTION 7
(62) CULVERTS N

LOAD RATING AND POSTING — CODE

(31) DESIGN LOAD Unknown 0
(63) OPERATING RATING METHOD - Allowable Stress 2
(64) OPERATING RATING - HS-1 1
(65) INVENTORY RATING METHOD - Allowable Stress 2
(66) INVENTORY RATING - HS-1 1
(70) BRIDGE POSTING - Posting Required 1
(41) STRUCTURE OPEN, POSTED ,OR CLOSED P
DESCRIPTION - Posted for Load

APPRAISAL — CODE

(67) STRUCTURAL EVALUATION 3
(68) DECK GEOMETRY 4
(69) UNDERCLEARANCES,VERTI & HORIZ N
(71) WATERWAY ADEQUACY 7
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 0000
(113)SCOUR CRITICAL BRIDGES U

PROPOSED IMPROVEMENTS

(75) TYPE OF WORK - CODE
(76) LENGTH OF STRUCTURE IMPROVEMENT
(94) BRIDGE IMPROVEMENT COST
(95) ROADWAY IMPROVEMENT COST
(96) TOTAL PROJECT COST
(97) YEAR OF IMPROVEMENT COST ESTIMATE
(114)FUTURE ADT 2200 (115) YEAR FUTURE ADT 2025

INSPECTIONS

(90) INSPECTION DATE 10/02/2013
(92) CRITICAL FEATURE INSPECTION : (93) CFI DATE
A) FRACTURE CRIT DETAIL - NO A)
B) UNDERWATER INSP - NO B)
C) OTHER SPECIAL INSP NO C)
SCOUR

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE Update Date: 12/04/2013

COUNTY :	DIVISION :	DISTRICT:	STRUCTURE NUMBER :	LENGTH :
ORANGE	7	1	670073	36 FEET

ROUTE CARRIED : SR1115

FEATURE INTERSECTED : CANE CREEK

LOCATED : 0.7 MI. E. JCT. SR1114

BRIDGE NAME :

CITY :

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
08	NFA	NFA	1100 2011	LT 227 RT 227

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1956	BMU			Unknown

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :
	BMU	5.5051	TAN	90	ON 2 UNDER 0

NAVIGATION :	HT. CRN. TO BED :	WATER DEPTH :
VC 0 FT HC 0 FT	11 FT	1 FT

SUPERSTRUCTURE : TIMBER DECK ON TIMBER JOISTS

SUBSTRUCTURE : END&INTBTS:TIMBER CAPS,POSTS&PILES,CONC.ENCASED,TIM.BULKHEAD

SPANS : 2@17'9

BEAMS OR GIRDERS : SP1:19LN 6X12 TIM.JST@1'4 CTS,SP2:20LN 6X12 TIM.JST@VAR.CTS.

FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
4X12 TIM,1.5WS		26.083 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
25.083 FT	25.833 FT	LT .375 FT RT .375 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :
HS-1	HS-1	Int Joist	SV 20 TTST 30 DATE 11/10/2011

SYSTEM : Secondary S.R. Route

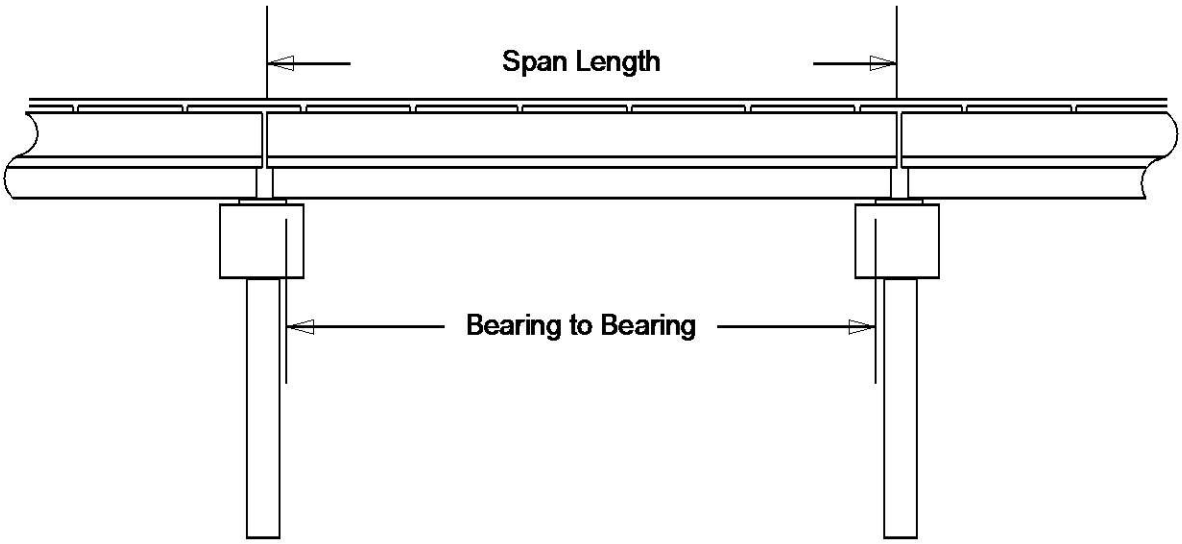
GREEN LINE ROUTE : N

UNDER ROUTES AND CLEARANCES

REMARKS :

Structure Data Worksheet

County: ORANGE Structure No: 670073 Date: 10/02/2013 Inspected By: TFM



Span No	Span Length	Bearing to Bearing	Comments
1	17.75	17	NBIS BL 33.5
2	17.75	17	

Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 670073 County: ORANGE Date: 10/02/2013 By: TFM

Record sounding from top of rail. Other location if needed:

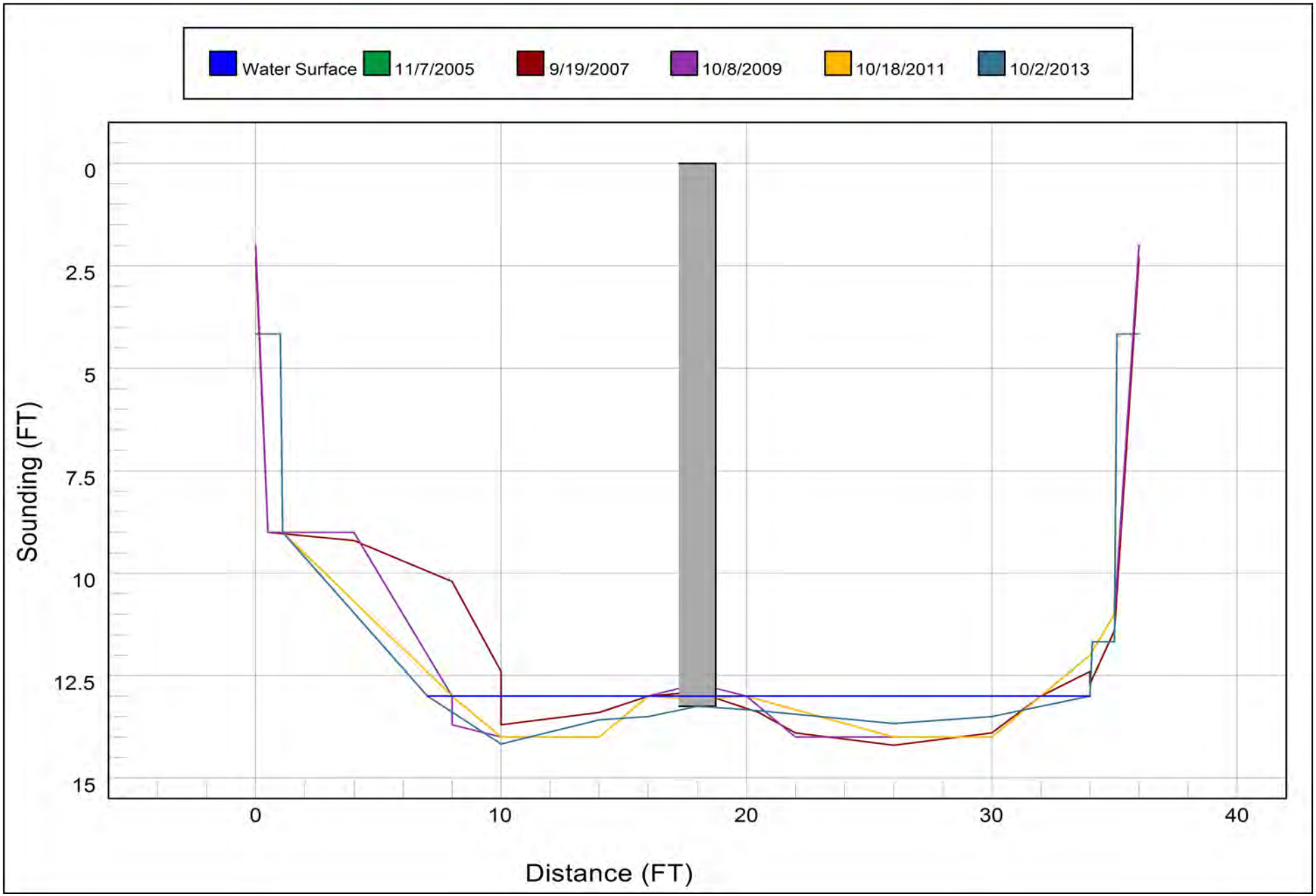
Distance from Highwater Mark to top of rail: Location of Highwater Mark:

DOWNSTREAM			UPSTREAM		
Distance (Station) (ft)	Sounding (ft)	Description	Distance (Station) (ft)	Sounding (ft)	Description
0	4.167	Top of Cap			
1	4.167	Top of Cap			
1.1	9	GROUND AT CAP	1.1	10	
7	13	Water Surface/Water Edge (WSWE)			
10	14.17				
14	13.58				
16	13.5				
18	13.25	Bent	18	13	
20	13.33				
26	13.67				
30	13.5				
34	13	Water Surface/Water Edge (WSWE)			
34.1	11.67	TOP OF SILL			
35	11.67	TOP OF SILL	35	11	
35.1	4.167	Top of Cap			
36	4.167				

Bridge: 670073 County ORANGE Date: 10/02/2013

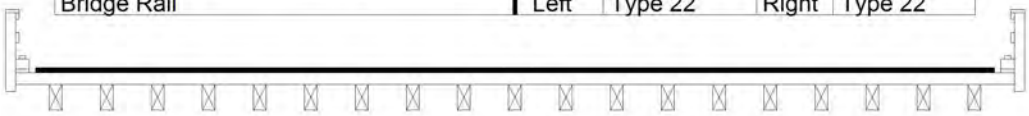
STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



Bridge Inspection Field Sketch

Deck Width/Out to Out	26.083ft	Between Rails			25.833ft
Clear Roadway	25.083ft	Wearing Surface			.123ft
Median Width		Median Height			
Curb Height		Left	.667ft	Right	.667ft
Sidewalk Width		Left		Right	
Clear Roadway (Rail to Median)		Left		Right	
Guardrail Width		Left	.5ft	Right	.5ft
Top of Rail to Deck/Wearing Surface		Left	2.833ft	Right	2.833ft
Bridge Rail		Left	Type 22	Right	Type 22



Measurements for Span #	1		
Deck Thickness	.313	Left Overhang	1.042
Top of Rail to Bottom of Beam	4.167	Right Overhang	1.042

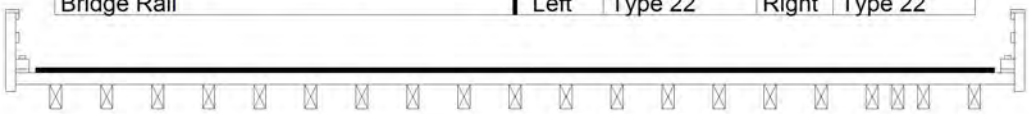
Beam Number	Beam Type	Spacing	Comments
1	Timber (Rectangular)	1.333ft	SPAN A ONLY
2	Timber (Rectangular)	1.333ft	SPAN A ONLY
3	Timber (Rectangular)	1.333ft	SPAN A ONLY
4	Timber (Rectangular)	1.333ft	SPAN A ONLY
5	Timber (Rectangular)	1.333ft	SPAN A ONLY
6	Timber (Rectangular)	1.333ft	SPAN A ONLY
7	Timber (Rectangular)	1.333ft	SPAN A ONLY
8	Timber (Rectangular)	1.333ft	SPAN A ONLY
9	Timber (Rectangular)	1.333ft	SPAN A ONLY
10	Timber (Rectangular)	1.333ft	SPAN A ONLY
11	Timber (Rectangular)	1.333ft	SPAN A ONLY
12	Timber (Rectangular)	1.333ft	SPAN A ONLY
13	Timber (Rectangular)	1.333ft	SPAN A ONLY
14	Timber (Rectangular)	1.333ft	SPAN A ONLY
15	Timber (Rectangular)	1.333ft	SPAN A ONLY
16	Timber (Rectangular)	1.333ft	SPAN A ONLY
17	Timber (Rectangular)	1.333ft	SPAN A ONLY
18	Timber (Rectangular)	1.333ft	SPAN A ONLY
19	Timber (Rectangular)	ft	SPAN A ONLY

Title	Description
STRUCTURE DATA SKETCH	STRUCTURE DATA SKETCH

Bridge No: 670073	**Drawn By:** DH	**Date:** 10/02/13	**File Name:** S0066000662

Bridge Inspection Field Sketch

Deck Width/Out to Out	26.083ft	Between Rails			25.833ft
Clear Roadway	25.083ft	Wearing Surface			.123ft
Median Width		Median Height			
Curb Height		Left	.667ft	Right	.667ft
Sidewalk Width		Left		Right	
Clear Roadway (Rail to Median)		Left		Right	
Guardrail Width		Left	.5ft	Right	.5ft
Top of Rail to Deck/Wearing Surface		Left	2.833ft	Right	2.833ft
Bridge Rail		Left	Type 22	Right	Type 22



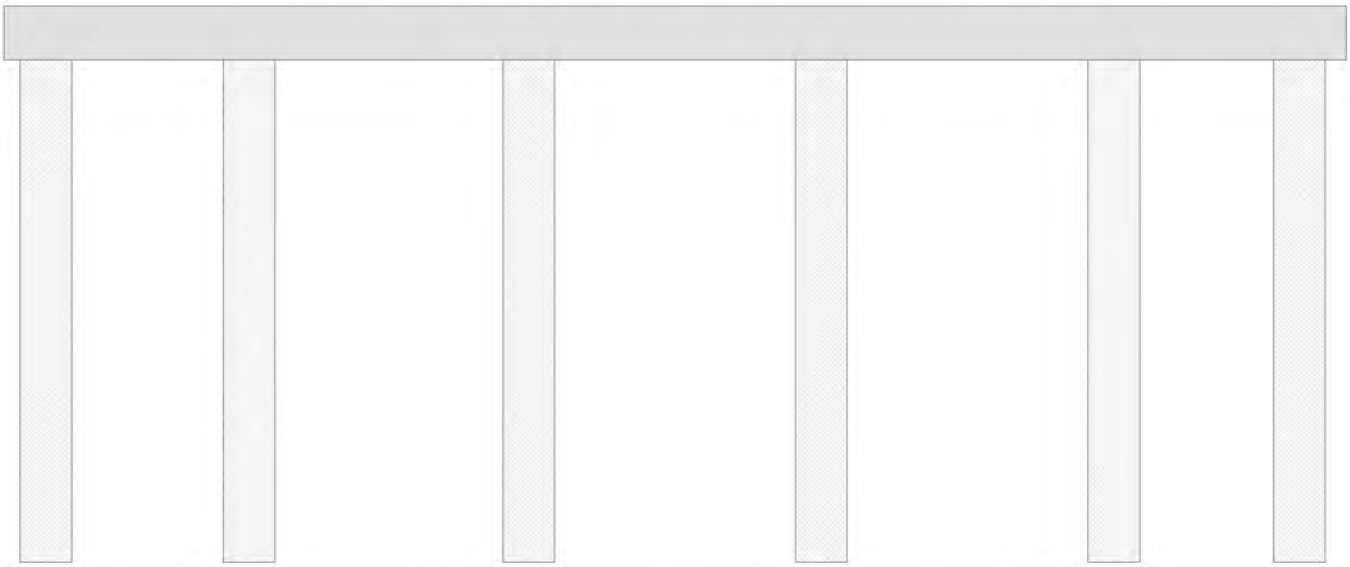
Measurements for Span #	2		
Deck Thickness	.313	Left Overhang	1.042
Top of Rail to Bottom of Beam	4.167	Right Overhang	1.042

Beam Number	Beam Type	Spacing	Comments
1	Timber (Rectangular)	1.333ft	SPAN B ONLY
2	Timber (Rectangular)	1.333ft	SPAN B ONLY
3	Timber (Rectangular)	1.333ft	SPAN B ONLY
4	Timber (Rectangular)	1.333ft	SPAN B ONLY
5	Timber (Rectangular)	1.333ft	SPAN B ONLY
6	Timber (Rectangular)	1.333ft	SPAN B ONLY
7	Timber (Rectangular)	1.333ft	SPAN B ONLY
8	Timber (Rectangular)	1.333ft	SPAN B ONLY
9	Timber (Rectangular)	1.333ft	SPAN B ONLY
10	Timber (Rectangular)	1.333ft	SPAN B ONLY
11	Timber (Rectangular)	1.333ft	SPAN B ONLY
12	Timber (Rectangular)	1.333ft	SPAN B ONLY
13	Timber (Rectangular)	1.333ft	SPAN B ONLY
14	Timber (Rectangular)	1.333ft	SPAN B ONLY
15	Timber (Rectangular)	1.333ft	SPAN B ONLY
16	Timber (Rectangular)	1.333ft	SPAN B ONLY
17	Timber (Rectangular)	.667ft	SPAN B ONLY
18	Timber (Rectangular)	.667ft	SPAN B ONLY
19	Timber (Rectangular)	1.333ft	SPAN B ONLY
20	Timber (Rectangular)	ft	SPAN B ONLY

Title	Description
SUPERSTRUCTURE SPAN B	SUPERSTRUCTURE SPAN B

Bridge No: 670073	**Drawn By:** DH	**Date:** 10/02/13	**File Name:** S0066000663

Bridge Inspection Field Sketch



Cap Information			Material Timber			
Length	Width	Height	Left Overhang	Right Overhang	Left Beam to End of Cap.	Right Beam to End of Cap.
26 ft.	1.042 ft.	1.042 ft.	.5 ft.	.5 ft.	1.02 ft.	1.02 ft.

Subcap Information			Material		
Length	Width	Height	Left Overhang	Right Overhang	Left Pile to Splice.

Sill Information			Material
Length	Width	Height	
26 ft.	3 ft.	2.5 ft.	

Pile #	Material	Spacing	Width/Dia.	Height	Length	Orientation	Driven?	Replacement?	Removed?	Collar?
1	Timber	4.25 ft.	1 ft.				No	No	No	No
2	Timber	5.417 ft.	1 ft.				No	No	No	No
3	Timber	5.833 ft.	1 ft.				No	No	No	No
4	Timber	5.667 ft.	1 ft.				No	No	No	No
5	Timber	3.833 ft.	1 ft.				No	No	No	No
6	Timber		1 ft.				No	No	No	No

Bent/Abutment #: 1 Similar Bents:

Title

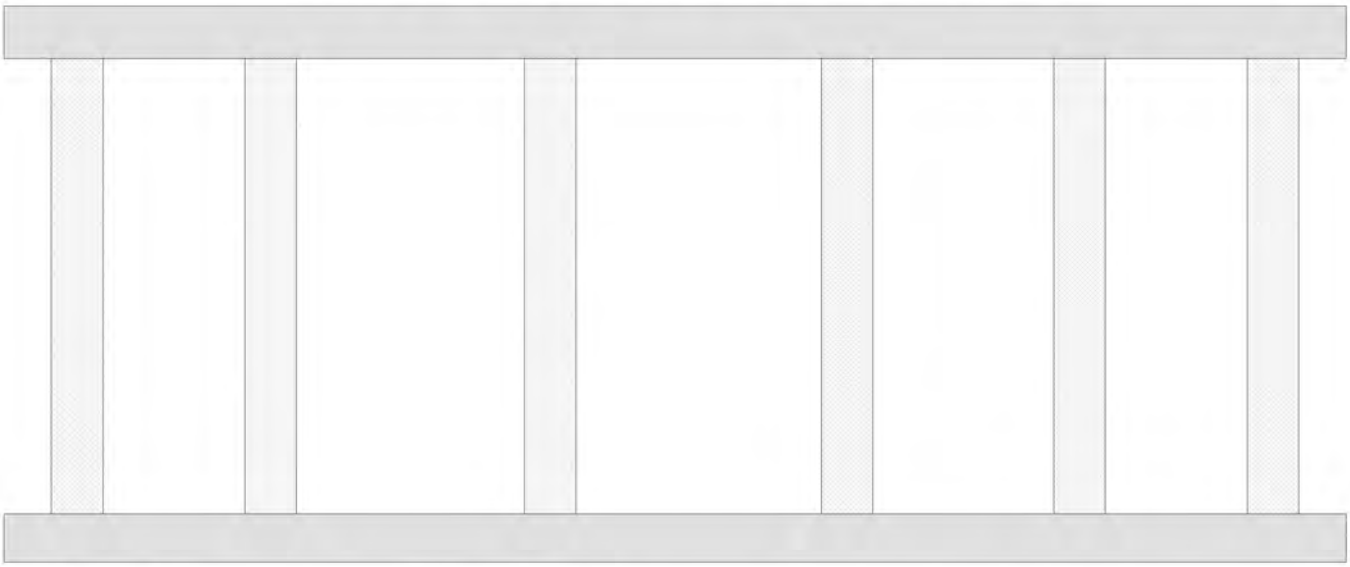
PILE DIAGRAM END BENT 1

Description

PILE DIAGRAM END BENT 1

Bridge No: 670073 **Drawn By:** TFM **Date:** 10/2/2013 **File Name:** S0066000664

Bridge Inspection Field Sketch



Cap Information			Material Timber			
Length	Width	Height	Left Overhang	Right Overhang	Left Beam to End of Cap.	Right Beam to End of Cap.
26 ft.	1 ft.	1.02 ft.	1.417 ft.	1.417 ft.	1.02 ft.	1.02 ft.

Subcap Information			Material		
Length	Width	Height	Left Overhang	Right Overhang	Left Pile to Splice.

Sill Information			Material
Length	Width	Height	
24.000 ft.	3 ft.	3.167 ft.	

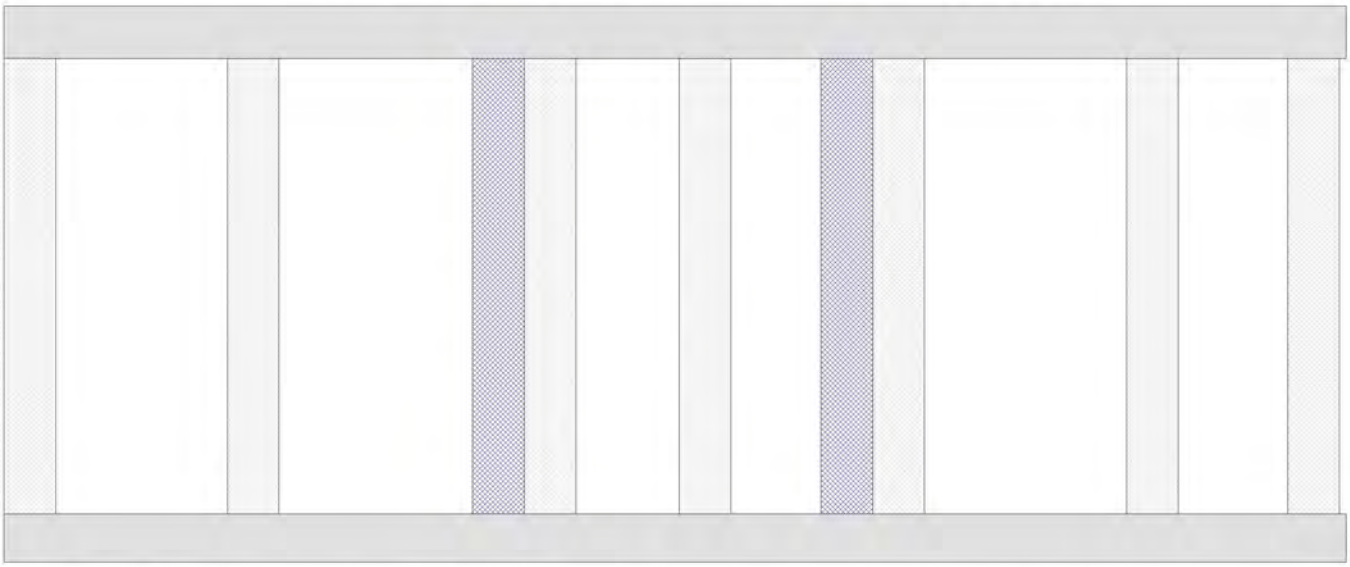
Pile #	Material	Spacing	Width/Dia.	Height	Length	Orientation	Driven?	Replacement?	Removed?	Collar?
1	Timber	3.75 ft.	1 ft.			Vertical	No	No	No	No
2	Timber	5.417 ft.	1 ft.			Vertical	No	No	No	No
3	Timber	5.75 ft.	1 ft.			Vertical	No	No	No	No
4	Timber	4.5 ft.	1 ft.			Vertical	No	No	No	No
5	Timber	3.75 ft.	1 ft.			Vertical	No	No	No	No
6	Timber		1 ft.			Vertical	No	No	No	No

Bent/Abutment #: 1 Similar Bents:

Title	Description
PILE DIAGRAM PIER	PILE DIAGRAM PIER

Bridge No: 670073	Drawn By: DH	Date: 10/02/13	File Name: S0066000665

Bridge Inspection Field Sketch



Cap Information			Material Timber			
Length	Width	Height	Left Overhang	Right Overhang	Left Beam to End of Cap.	Right Beam to End of Cap.
26 ft.	.959 ft.	1.02 ft.	.5 ft.	.5 ft.	1.02 ft.	1.02 ft.

Subcap Information			Material		
Length	Width	Height	Left Overhang	Right Overhang	Left Pile to Splice.

Sill Information			Material
Length	Width	Height	
26 ft.	3 ft.	1.667 ft.	

Pile #	Material	Spacing	Width/Dia.	Height	Length	Orientation	Driven?	Replacement?	Removed?	Collar?
1	Timber	4.33 ft.				Vertical	No	No	No	No
2	Timber	4.25 ft.				Vertical	No	No	No	No
3	Timber	1 ft.				Vertical	No	Yes	No	No
4	Timber	3 ft.				Vertical	No	No	No	No
5	Timber	2.75 ft.				Vertical	No	No	No	No
6	Timber	1 ft.				Vertical	No	Yes	No	No
7	Timber	4.917 ft.				Vertical	No	No	No	No
8	Timber	3.833 ft.				Vertical	No	No	No	No
9	Timber					Vertical	No	No	No	No

Bent/Abutment #: 2 Similar Bents:

Title	Description
PILE DIAGRAM END BENT 2	PILE DIAGRAM END BENT 2

Bridge No: 670073	Drawn By: DH	Date: 10/02/13	File Name: S0066000666

Structure 670073 County ORANGE Date: 10/02/2013 Structure Photos

LOOKING EAST

LOOKING WEST

Structure 670073 County ORANGE Date: 10/02/2013 Structure Photos

EAST END APPROACH

LOOKING DOWNSTREAM

LOOKING UPSTREAM

END BENT 1

Structure 670073 County ORANGE Date: 10/02/2013 Structure Photos

LOOKING UPSTREAM

LOOKING DOWNSTREAM

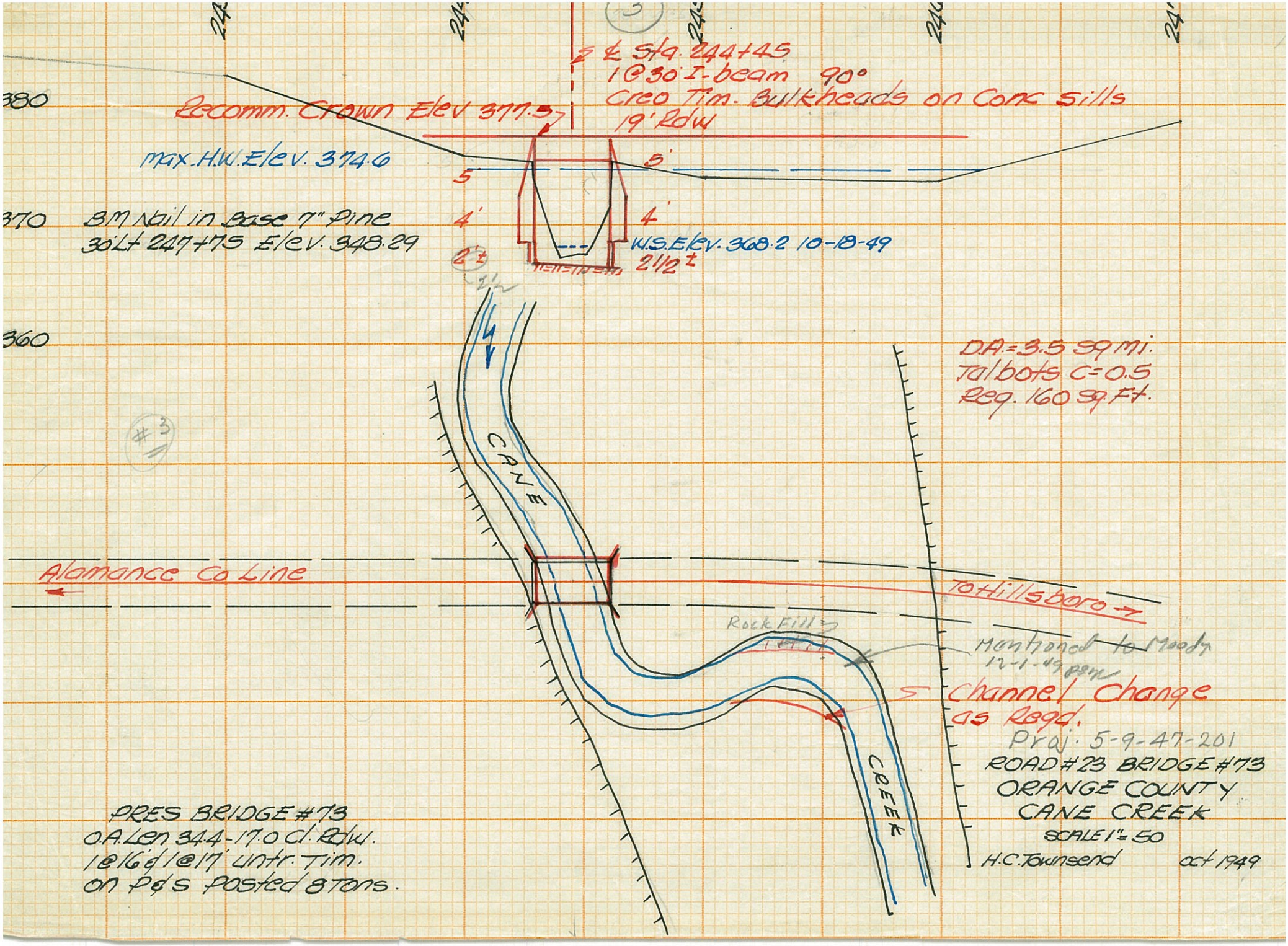
END BENT 2

UNDERSIDE OF DECK

PIER

SOUTH PROFILE

NORTH PROFILE


℄ Sta. 244+45
1@30' I-beam 90°
Creo Tim. Bulkheads on Conc Sills
19' Rdw
Recomm. Crown Elev 377.5
Max. H.W. Elev. 374.6
5'
5
4'
4'
W.S. Elev. 368.2 10-18-49
2½'
BM Nail in Base 7" Pine
30' Lt 247+75 Elev. 348.29
380
370
360
DA = 3.5 sq mi.
Talbots C = 0.5
Req. 160 sq. Ft.
CANE
CREEK
Alamance Co Line
To Hillsboro
Rock Fill
Montrond to Moody
12-1-49
Channel Change
as Reqd.
Proj. 5-9-47-201
ROAD #23 BRIDGE #73
ORANGE COUNTY
CANE CREEK
SCALE 1" = 50
H.C. Townsend
oct 1949
PRES BRIDGE #73
O.A. Len 34.4-17.0 Cl. Rdw.
1@16 & 1@17' Untr. Tim.
on Pds Posted 8 Tons.

This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long term approach to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map flood hazard areas at the local level. As a part of this effort, the State of North Carolina has joined in a Cooperating Technical State agreement with FEMA to produce and maintain this digital FIRM.

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://FRIS.NC.GOV/FRIS

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A,V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with Average Depth Less Than One Foot or With Drainage Areas of Less Than One Square Mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes *Zone X*
OTHER AREAS	Areas Determined to be Outside the 0.2% Annual Chance Floodplain *Zone X*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Accredited or Provisionally Accredited Levee, Dike, or Floodwall
	Non-accredited Levee, Dike, or Floodwall
	BM5510 North Carolina Geodetic Survey bench mark
	BM5510 National Geodetic Survey bench mark
	BM5510 Contractor Est. NCFMP Survey bench mark
	012 18.2 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	8 Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
OTHER FEATURES	Hydrographic Feature
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the North Carolina Floodplain Mapping Program website at http://www.ncfloodmaps.com, or contact the FEMA Map Service Center.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the North Carolina Floodplain Mapping Program (NCFMP). The source of this information can be determined from the metadata available in the digital FLOOD database and in the Technical Support Data Notebook (TSDN).

ACCREDITED LEVEE NOTES TO USERS: If an accredited levee note appears on this panel check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

PROVISIONALLY ACCREDITED LEVEE NOTES TO USERS: If a Provisionally Accredited Levee (PAL) note appears on this panel, check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicates the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

LIMIT OF MODERATE WAVE ACTION NOTES TO USERS: For some coastal flooding zones the AE Zone category has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

Limit of Moderate Wave Action (LiMWA)

COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE

This map may include approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see http://www.fws.gov/habitatconservation/coastal_barrier.html, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-WILD.

CBRS Area

Otherwise Protected Area

SCALE

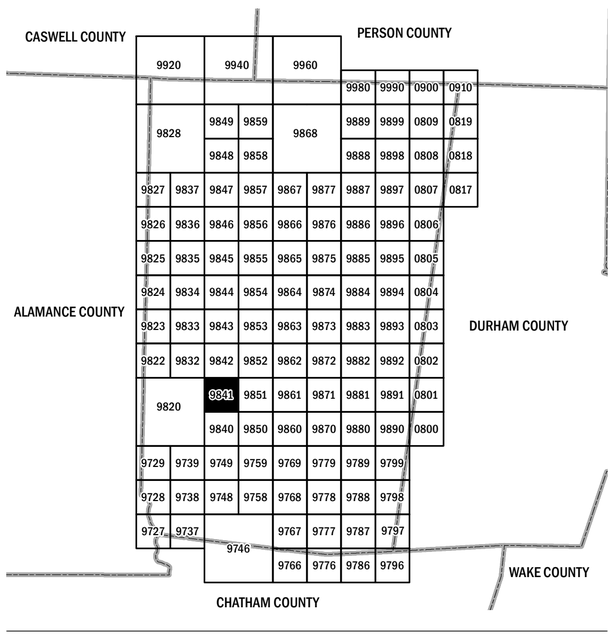
Map Projection:
North Carolina State Plane Projection Feet (Zone 3200)
Datum: NAD 1983 (Horizontal), NAVD 1988 (Vertical)

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 75 150 300 Meters

PANEL LOCATOR



FEMA

National Flood Insurance Program

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 9841

Panel Contains:

COMMUNITY	CID	PANEL	SUFFIX
ORANGE COUNTY	370342	9841	J

MAP NUMBER
3710984100J

MAP REVISED
02/02/07

USGS
North Carolina StreamStats

Streamstats Ungaged Site Report

Date: Fri Aug 29 2014 11:57:37 Mountain Daylight Time
Site Location: North_Carolina
NAD27 Latitude: 35.9985 (35 59 55)
NAD27 Longitude: -79.1943 (-79 11 40)
NAD83 Latitude: 35.9986 (35 59 55)
NAD83 Longitude: -79.1941 (-79 11 39)
Drainage Area: 0.0707 mi2
Percent Urban: 20.1 %
Percent Impervious: 0.5 %

Peak Flows Region Grid Basin Characteristics

100% Peak Southeast US 2009 5158 (0.0707 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.0707 (below min value 1)	1	9000
Percent Area in Region 1 (percent)	100.000	0	100
Percent Area in Region 2 (percent)	0.000	0	100
Percent Area in Region 3 (percent)	0.000	0	100
Percent Area in Region 4 (percent)	0.000	0	100
Percent Area in Region 5 (percent)	0.000	0	100

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Urban Flows Region Grid Basin Characteristics

100% Peak urban Blue Ridge-Piedmont FS007-00 (0.0707 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.0707	0.04	41
Area of Impervious Surfaces (percent)	0.53 (below min value 2)	2	54.6

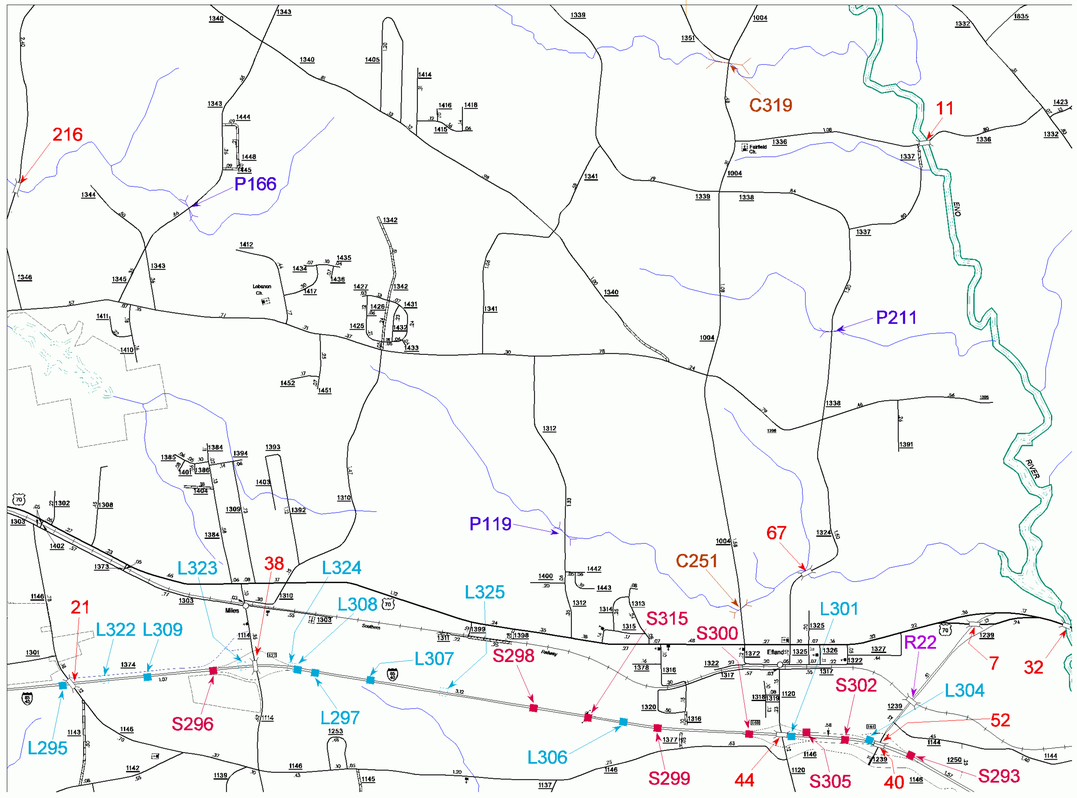
Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Peak Flows Region Grid Streamflow Statistics

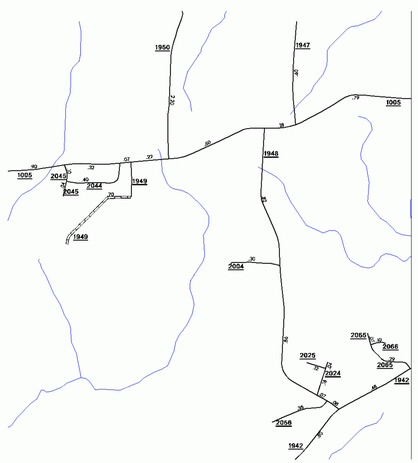
Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	28.4				
PK5	56.1				
PK10	77.6				
PK25	108				
PK50	135				
PK100	161				
PK200	187				
PK500	229				

Urban Flows Region Grid Streamflow Statistics

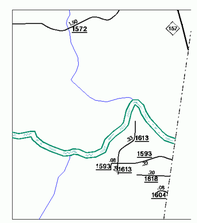
Statistic	Flow (ft^3/s)	Standard Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2U	3.04				
PK5U	9.03				
PK10U	15.5				
PK25U	34.3				
PK50U	46.7				
PK100U	61.9				



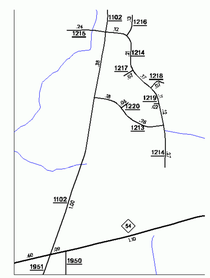
Efland and vicinity



Inset 4

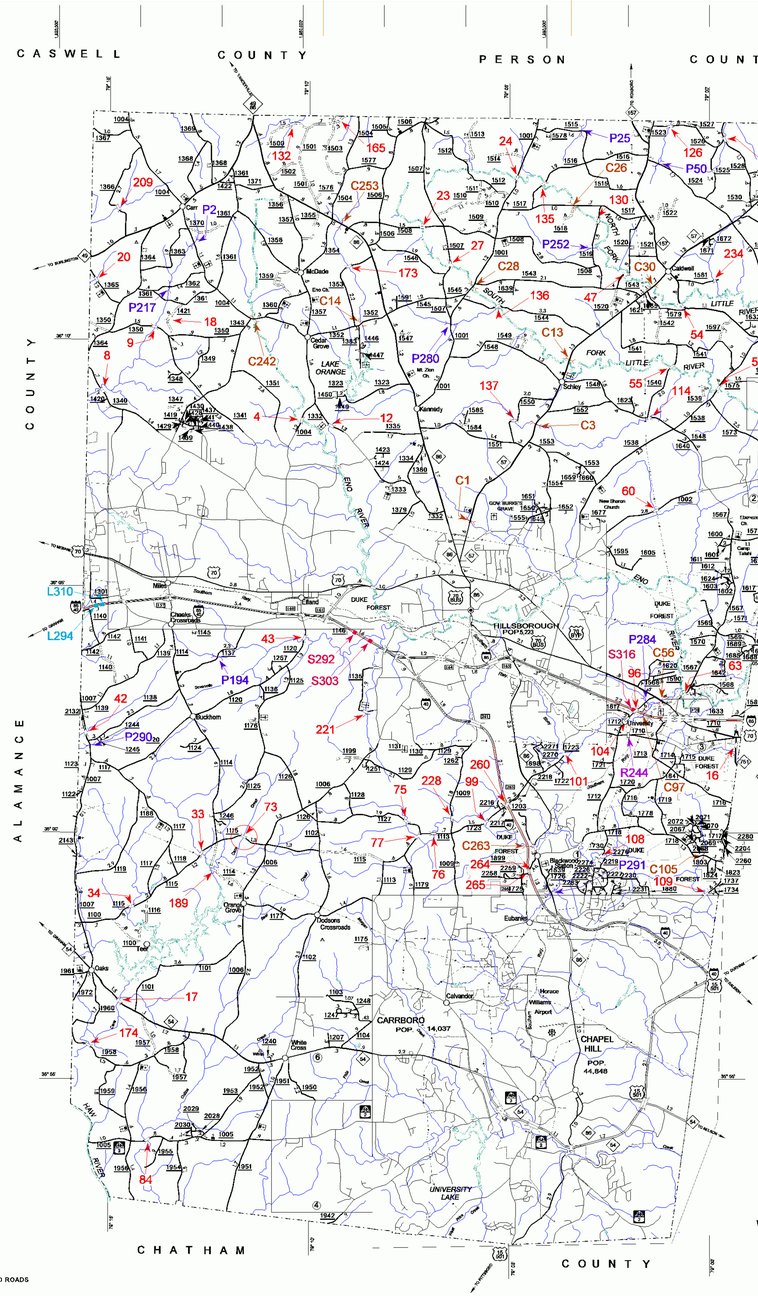


Inset 5



Inset 6

NOTE : MAP INCLUDES ONLY STATE MAINTAINED ROADS
OR IMPORTANT NON-SYSTEM ROADS.
ROADS SHOWN AS OF JULY 19, 2006.


CASWELL COUNTY
PERSON COUNTY
ALAMANCE COUNTY
DURHAM COUNTY
CHATHAM COUNTY
HILLSBOROUGH POP 5,233
CARRBORO POP 14,037
CHAPEL HILL POP 44,848
DUKE FOREST
UNIVERSITY LAKE
LAKE ORANGE
Eubanks
Calvander
Dodsons Crossroads
Buckhorn
Cedar Grove
Mt. Zion Ch.
Kennedy
Snipes
Cabbell
Bethel
Rashkis Elementary
Horace Williams Airport
Efland
Mebane
Oaks
Cane Creek Res.
Orange Grove
Eno Ch.
McDade
Carr
Snow Camp
Saxapahaw
Swepsonville
Haw River
Mt. Willey Ch.
Cedar Grove Ch.
Bethel Ch.
Rock Creek Ch.
Fairfield Ch.
Lebanon Ch.
Southern Pines
Pleasant Grove Ch.
Bethel Ch.
Cane Creek Res.
Orange Grove
Buckhorn
Snipes
Kennedy
Cabbell
Bethel
Efland
Mebane
Oaks
Calvander
Eubanks
Dodsons Crossroads
Buckhorn
Cedar Grove
Mt. Zion Ch.
Kennedy
Snipes